

MASTER SPECIALTIES SERIES 90E

MINIATURE ILLUMINATED
PUSH-BUTTON SWITCH

TELLITE SWITCH

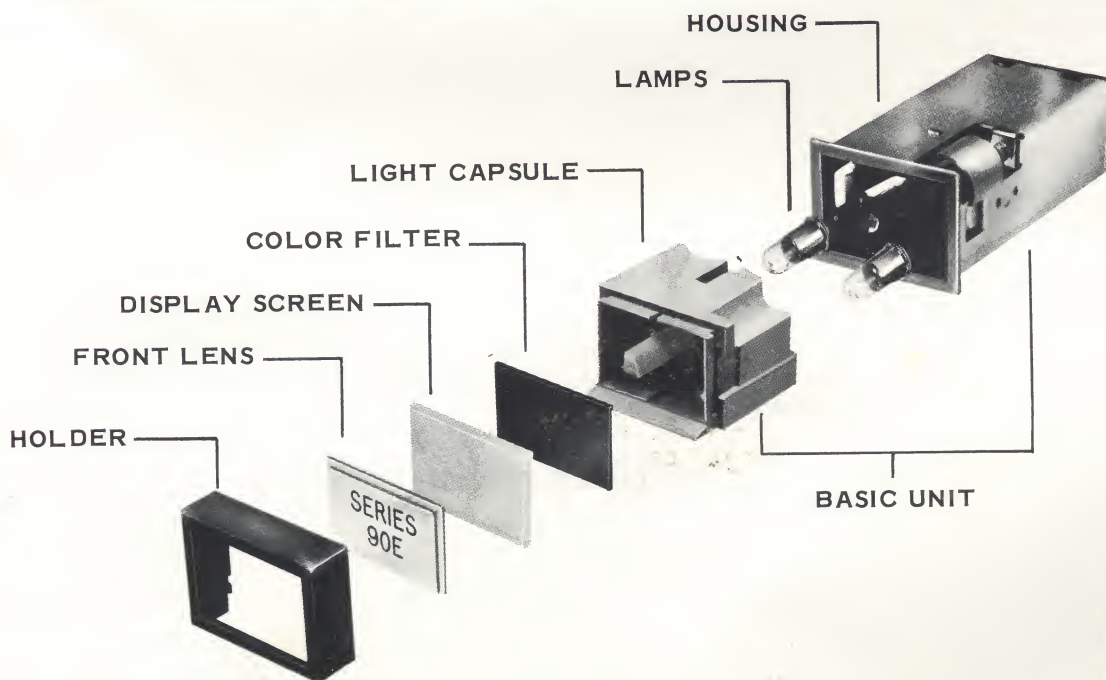


TELLITE SWITCH

Two-Lamp Illuminated Push-Button Switch



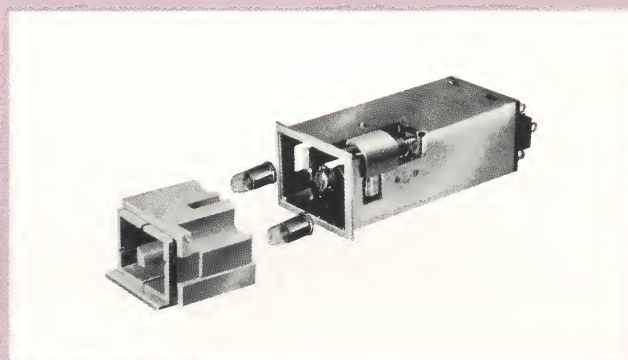
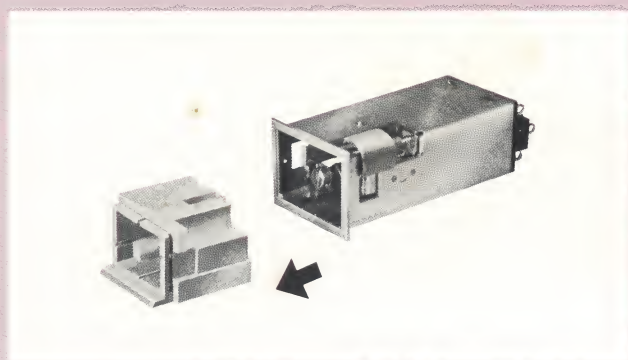
The Series 90E Tellite Switch is a miniature illuminated push-button switch occupying half the volume of conventional units. It features flush mounting and rectangular lens configuration as well as word indication by means of two separate standard lamps. The lamps and/or lens assembly may be installed or removed from the panel front without the use of any tools. A positive hard mount is easily accomplished by means of captive mounting screws accessible from the front of the unit. No special brackets are required, nor is any mounting hardware visible from the panel front. This enables the designer to have horizontal rows, vertical stacks, or matrices. The switch itself, an integral part of the unit, is available with two- and four-pole double-throw contacts, in either momentary or alternate action. The Tellite Switch is also available as a holding coil unit.



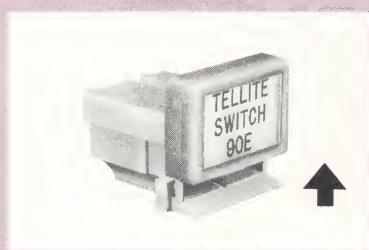
ACTUAL SIZE

No Tools Required for Lamp Replacement

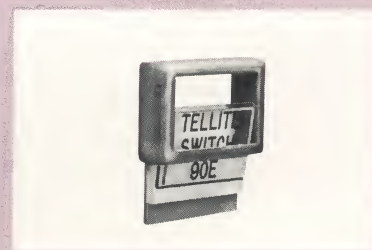
Lamp replacement is accomplished from the panel front without the use of any tools. The light capsule, which holds the lamps and front lens, is held to the unit housing by spring clips which allow it to be removed for quick and easy lamp replacement.



Removable Lens Assembly



Once the light capsule has been disengaged from the housing, the lens assembly is readily removed. This permits easy changing of display arrangement, color filter, or legend configuration. Simply slide the holder up, which frees the lens, diffuser, and color filter.

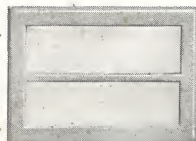


Versatile Display Arrangements

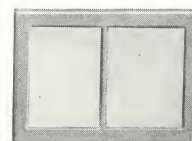
Word indication may be presented on a full, horizontally, or vertically split display screen. The full display one-color has the added feature of two-lamp reliability. The horizontal or vertical split is made possible by the unique design of the light capsule wherein one lamp illuminates each half of the display, thus providing two indications in the same unit. Colored display is achieved through the use of color filters. Color coded indication – two separate colors illuminating the full display screen – is available. A process in which Master Specialties Company pioneered is that of engraving on the reverse side of the lens. This avoids the usual problem of legends being effaced through normal wear.



ONE COLOR
FULL DISPLAY



HORIZONTAL
SPLIT



VERTICAL
SPLIT

Wide Range of Lamp Voltages

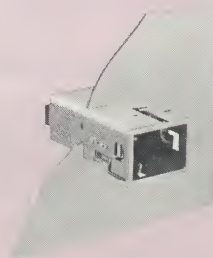
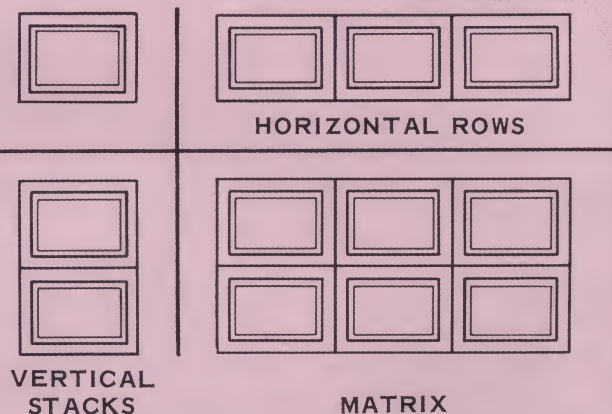
In addition to the 6, 12 and 28 volt incandescent lamps there is also available a specially developed neon lamp assembly which incorporates the required current limiting resistor in the assembly. This neon is excellent for 115V AC applications and provides good indication for red or amber colors.

Wide Choice of Switch Operations

A feature of the symmetrically designed Series 90E Tellite Switch is simultaneous snap-action switching in both directions. A double-break contact design permits cooler switching of larger loads, thus increasing electrical life. It is available as a 2 PDT or 4 PDT with momentary or alternate action. Also available with momentary action switches is a 6, 12, or 28V DC holding coil. With the inclusion of this magnetic holding coil in the unit, numerous electrical interlock, lock-in, and lock-out circuits are made possible. (Depressing the front lens after the coil has been energized causes the switch contacts to remain actuated until the coil voltage is removed.)

Unlimited Mounting Arrangements

Designers are afforded infinite flexibility in panel layout arrangements. The units may be mounted singly with no limitation as to room required between other associated equipment. Vertical stacks or horizontal rows are readily accomplished and allow single elongated panel cutouts rather than individual cutouts for each unit. Any unit within a group may be installed or removed without the necessity of disturbing adjacent units. The unit has the further capability of being mounted in matrices.



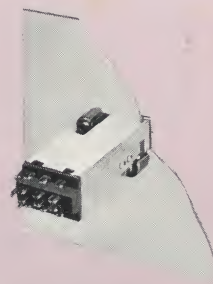
1. PASS UNIT THROUGH PANEL

UNIQUE MOUNTING HAS NO LOOSE HARDWARE

The mounting is designed as an integral part of the main housing and consists of special mounting sleeves located in opposite corners. Removing the front-end assembly gives access to the screw heads which cam the mounting sleeves in position to contact the rear of the panel. Hard mounting is attained, yet no screw heads show from the panel front; there is no loose or special mounting hardware; and the mounting is completely contained within the outline dimensions of the unit's front face.



2. TIGHTEN MOUNTING SCREWS



3. POSITIVE HARD MOUNT (REAR VIEW)

Ordering Information

CODED CALL-OUT PROVIDES FOR EASE OF ORDERING

The completed unit, including the engraved inscription, may be ordered by a single coded call-out. This system eliminates the need for individually ordering each item required for a completed unit, which in turn would necessitate the customer

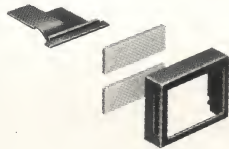
having to assemble the items once received. The engraving service eliminates the customer's need for in-house engraving equipment or additional sub-contracting.

CODED CALL-OUT SYSTEM

Each item required for a completed unit is assigned a code number. By selecting the code number call-out for each item required and then placing these

in alphabetical sequence following the series number "90E," a completed unit call-out is derived. An example is shown below:

ITEMS COMPRISING COMPLETED UNIT

SERIES	BASIC UNIT	LAMPS	COLOR FILTERS	DISPLAY SCREEN	FRONT LENS AND ENGRAVING
90E	A1C2	F3	J2(AB)	L2	N1R16 ON/OFF
TELLITE SWITCH	 HOUSING AND LIGHT CAPSULE 2 PDT MOM. ACTION	 2 EA. 28 VOLT LAMPS	 1 EA. AMBER 1 EA. BLUE	 HORIZONTAL SPLIT	

For a complete selection of items, refer to pages 6 and 7.

ELIMINATION OF ITEMS

Where one or more items comprising a completed unit are not required, omit the call-out for that item.

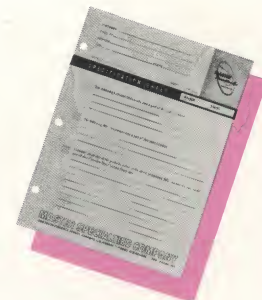
correct order number for that item. Lamps, when ordered separately, are always considered 1 each rather than the 2.

ORDERING SEPARATE ITEMS

Where separate items are required, precede an item's call-out with the basic "90E" to obtain the

ALTERNATE ORDERING METHOD

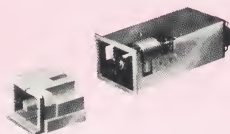
An alternate ordering method is available wherein all items required for a completed unit are included on a specification sheet which is maintained by MSC. Each completed unit is assigned a dash number following the basic specification number set up for each customer. This method reduces the size of the completed unit part number to seven digits; however, this method is not coded.



Ordering Information (Cont.)

BASIC UNIT CODE NUMBERS *

SWITCH CHARACTERISTIC	SWITCH UNIT	HOLDING COIL UNIT		
		6 Volt	12 Volt	28 Volt
2 PDT Momentary	A1C2	A3C2	A4C2	A2C2
4 PDT Momentary	A1C3	A3C3	A4C3	A2C3
2 PDT Alternate	A1C4	—	—	—
4 PDT Alternate	A1C5	—	—	—



LAMP CODE NUMBERS *

F1	6 Volt	F4	115 Volt Neon W/Resistor
F2	12 Volt		
F3	28 Volt	F10	115 Volt Neon, No Resistor



Lamp size: T-1 1/4 midget flanged base.

COLOR FILTER CODE NUMBER *

To order a color filter for a specific display arrangement, use the code numbers shown below for that display, followed by the color code letter desired in parentheses. In a horizontal split, the first color code denotes the top half of the display, the second color code denotes the bottom half. In a vertical split, the first color code denotes the

color for the left half of the display, the second color code denotes the color for the right half. For the 2-color full display, the first color code denotes the color to be used with the left lamp; the second color code denotes the color for the right lamp, as viewed from the panel front.



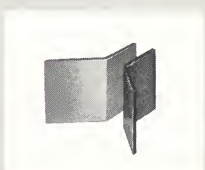
J1 ()



J2 ()



J3 ()



J4 ()

COLOR CODE

A	Amber	R	Red
B	Blue†	W	White†‡
G	Green†	Y	Yellow†

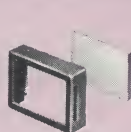
†Not recommended for use with 115 VAC neon lamp.

‡Light blue for white illumination.

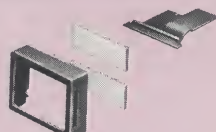
DISPLAY SCREEN CODE NUMBERS *

The code number includes the holder and dividers, where applicable. Full displays or horizontally or vertically split displays are available. The coded

part number, "L1," etc., also includes the holder for the lens assembly.



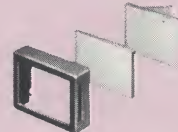
FULL
L1



HORIZ. SPLIT
L2



VERT. SPLIT
L3



TWO COLOR
(FULL DISPLAY)
L4

FRONT LENS AND ENGRAVING CODE NUMBERS

The front lens with required engraving is ordered by following the call-out "N1R" with the engraving configuration number as selected from page 7. After this, the actual wording is added, using commas between rows of wording and a straight vertical line between splits. An example is shown on page 7.

NON-ENGRAVED LENS

When a non-engraved lens is required, the code number "N1" is used, eliminating the remaining part of the engraved lens call-out.

SEPARATE ENGRAVED LENSES

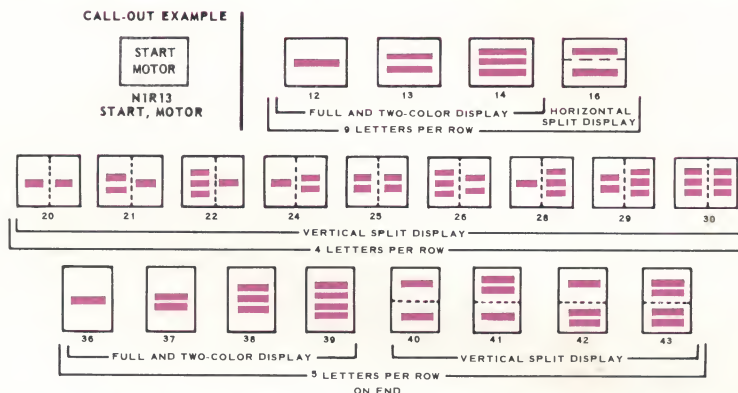
Where separate engraved lenses are required, precede the front lens and engraving code number call-out with the basic "90E."

ENGRAVING SPECIFICATIONS

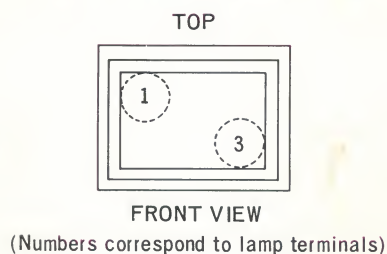
Engraving of the 90E Series lens produces letters .110" in height, with a .017" stroke. Letters are filled with a special black filler.

*When ordering as a separate item, precede the above code number by the basic "90E."

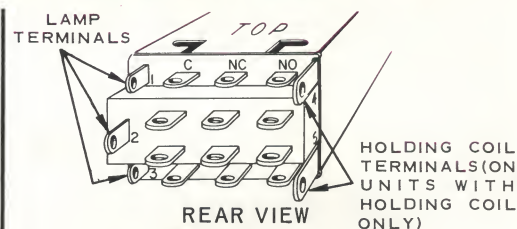
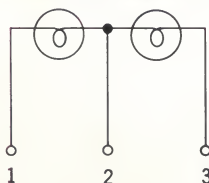
Engraving Configurations



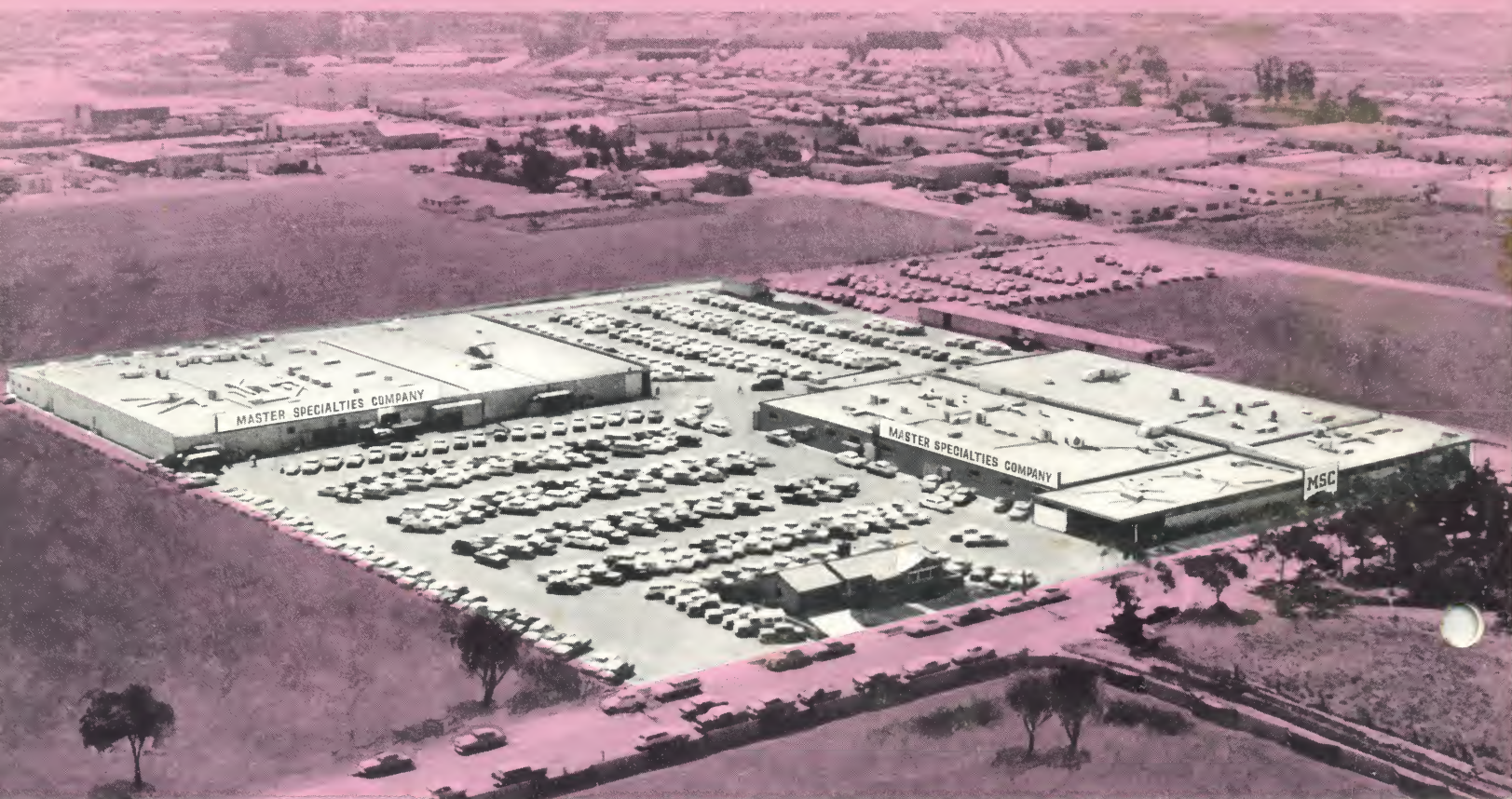
Lamp and Switch Terminal Identification



LAMP SCHEMATIC



General Offices and Plant Facilities in Costa Mesa, California



MSC

Master Specialties Company

General Offices and Manufacturing Facilities:
1640 Monrovia, Costa Mesa, California 92627 • Phone (Area Code 714) 642-2427
TELEX 6-78433

REGIONAL OFFICES THROUGHOUT THE UNITED STATES

ATLANTA AREA
HUNTSVILLE, ALABAMA 35801
904 Bob Wallace Avenue, S. W.
Telephone Area Code 205-536-7415

LOS ANGELES AREA
COSTA MESA CALIFORNIA 92627
1650 Monrovia
Telephone Area Code 714-642-0114

SAN FRANCISCO AREA
SUNNYVALE, CALIFORNIA 94086
916 California Avenue
Telephone Area Code 408-245-9292

FLORIDA AREA
WINTER PARK, FLORIDA 32789
372 W. Fairbanks Avenue
Telephone Area Code 305-647-0100

CHICAGO AREA
CHICAGO, ILLINOIS 60630
5320 W. Lawrence
Telephone Area Code 312-282-7112

BOSTON AREA
WALTHAM, MASSACHUSETTS 02154
751 Main Street
Telephone Area Code 617-893-1020

PHILADELPHIA AREA
HADDONFIELD, NEW JERSEY 08033
5 Haddon Avenue
Telephone Area Code 609-428-0701

UPSTATE NEW YORK AREA
SYRACUSE, NEW YORK 13202
132 Burnet Avenue
Telephone Area Code 315-479-9191

NEW YORK CITY AREA
VALLEY STREAM, L. I., NEW YORK 11581
507-535 Rockaway Avenue
Telephone Area Code 516-561-2334

CLEVELAND AREA
CLEVELAND, OHIO 44112
13308 Euclid Avenue
Telephone Area Code 216-851-9700

DALLAS AREA
DALLAS, TEXAS 75235
6434 Maple Avenue
Telephone Area Code 214-357-9459

HOUSTON AREA
HOUSTON, TEXAS 77002
1811 Crawford Street
Telephone Area Code 713-228-2294

SEATTLE AREA
SEATTLE, WASHINGTON 98133
1110 North 175th Street
Telephone Area Code 206-546-5161

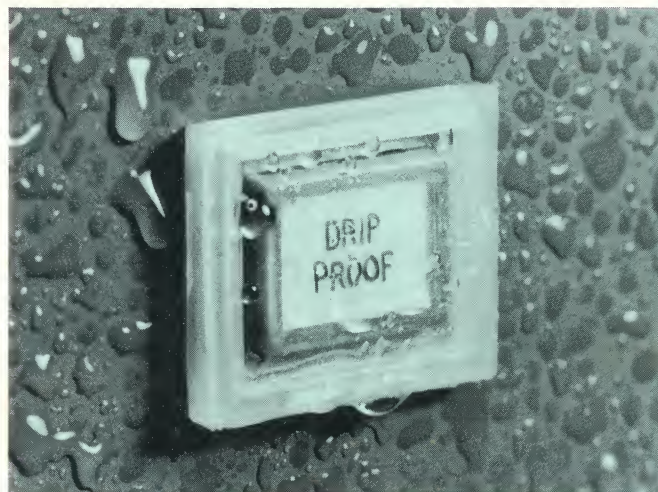
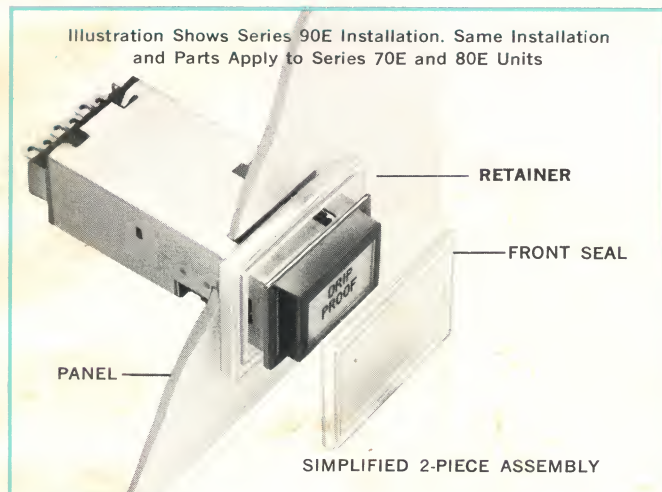
MSC

SUPPLEMENT SHEET

NO. 4018 TO
CATALOG NO. 2005,
2006, & 2008
REVISION B

DRIP-PROOF SEAL

FOR USE WITH SERIES 70E, 80E AND 90E UNITS



An improved assembly that prohibits the entrance of liquids or foreign matter through the front of panels on which Series 70E, 80E and 90E units are mounted.

EFFECTIVE, SIMPLIFIED 2-PART ASSEMBLY The 70E, 80E and 90E Drip-Proof Seal is an effective accessory to the basic unit for applications where adverse environmental conditions could prove destructive to equipment. Comprised of two parts, this assembly provides a more effective seal than other available types. The two parts are: (1) Transparent front cover seal; (2) Plastic retainer.

QUICKLY, EASILY INSTALLED Installation of the Drip-Proof Seal is easily accomplished during the mounting of unit. The retainer is put on first over the indicator unit from the back and slid forward as far as it will go to frame the flange of the unit housing. The unit is then mounted in the normal manner. Sufficient pressure will form a water-tight seal between the panel and casing. After the unit has been mounted

to the panel, the front seal can be simply pressed into place over the flange of the diaphragm.

NO HINDRANCE OF LEGEND READABILITY OR SWITCH ACTION. The properties of the plastic front seal yield a virtually transparent flexible cover that permits free movement of the switching mechanism with the application of normal pressure. Legends can be easily read before or during illumination.

QUICK ACCESS TO FRONT END ASSEMBLIES. The front seal can be simply removed at any time by snapping it off from the retainer, permitting removal of the front end assembly of the indicator unit for relamping, change of colored lamp filters or for front lens legend replacement. No tools are required for any of the changes.

SEE THE REVERSE SIDE OF THIS SHEET FOR COMPLETE ORDERING INFORMATION.

MASTER SPECIALTIES COMPANY

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TELEX 6-78433

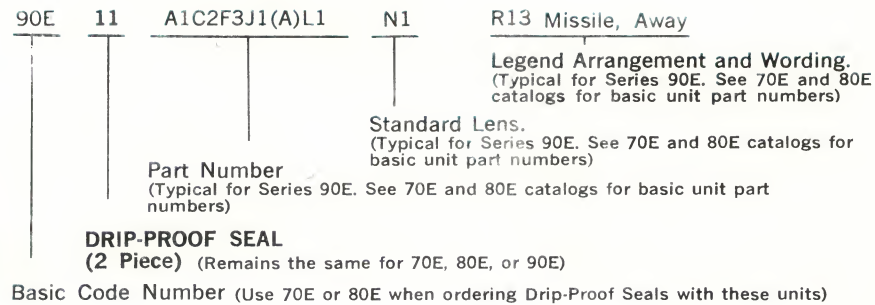
MSC

REGIONAL OFFICES
THROUGHOUT
THE U.S.A.

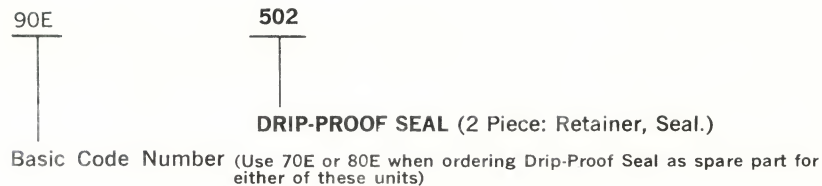
HOW TO SPECIFY THE DRIP-PROOF SEAL WHEN ORDERING

The part numbers used in the examples below are typical Series 90E designations. See Catalog Numbers 2005, 2006, and 2008 for specific information on basic units for Series 70E, 80E and 90E respectively.

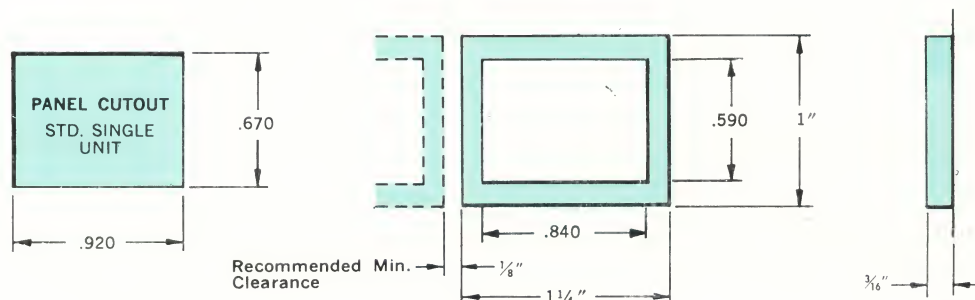
WHEN ORDERED AS A PART OF A COMPLETE UNIT



WHEN ORDERED AS A SPARE PART



OVERALL DIMENSIONS



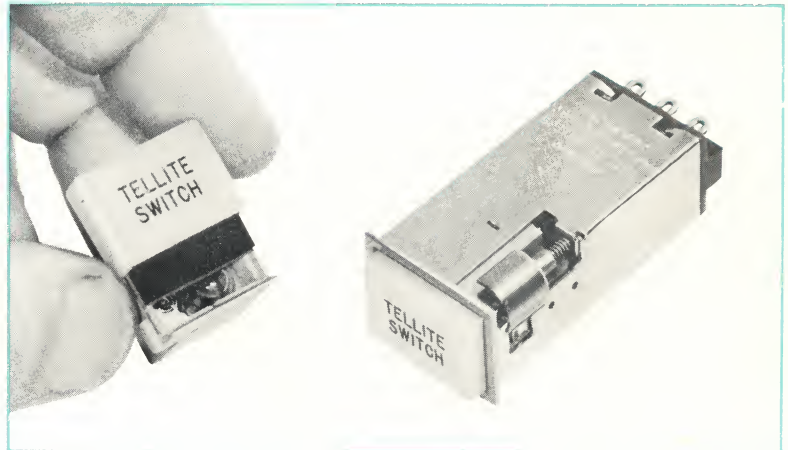
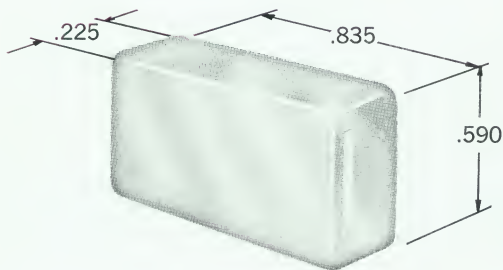
MSC

SUPPLEMENT SHEET

NO. 4027 TO
CATALOG NO. 2008
REVISION A

90E SERIES TELLITE SWITCH

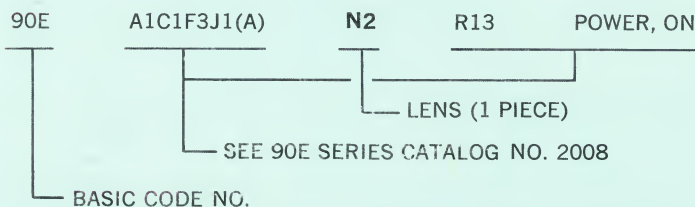
NEW SIMPLIFIED FULL-VIEW LENS/FILTER ASSEMBLY



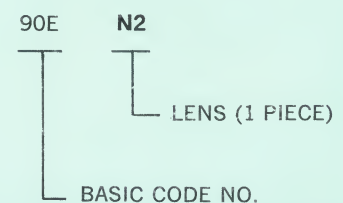
The new lens assembly, an optional feature of the Master Specialties Series 90E basic push-button switch, is comprised of a color filter and a white acrylic lens that holds the filter securely in position. This simplicity permits quick, easy changing of filter color or substitution of legends by replacing the entire front lens. Since there is no opaque frame or lens holder, there is no obstruction to lateral viewing of legend area, and the entire lens surface and protruding edges illuminate evenly when lamps are energized, providing for 180 degree observation of on-off conditions. Now available only in Full Display. For ordering see below.

TYPICAL ORDERING INFORMATION

COMPLETED ASSEMBLY



SPARE PART

**MASTER SPECIALTIES COMPANY**

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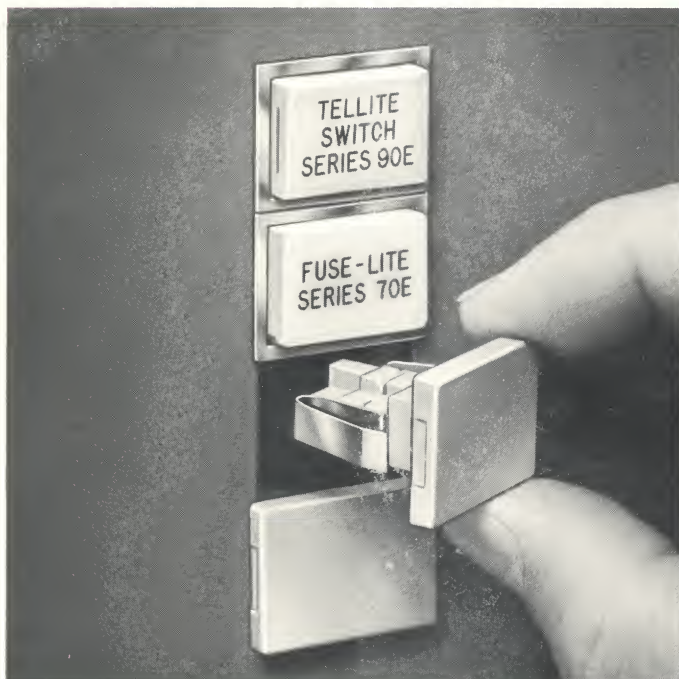
MSCREGIONAL OFFICES
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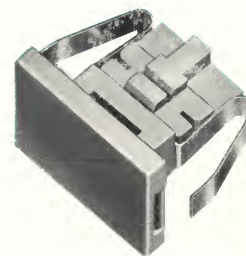
SUPPLEMENT SHEET

NO. 4030 to
CATALOG NO. 2005
2006
2008

PANEL PLUGS WITH SPRING MOUNTING CLIPS DESIGNED FOR USE WITH MSC SERIES 70E, 80E, AND 90E UNITS

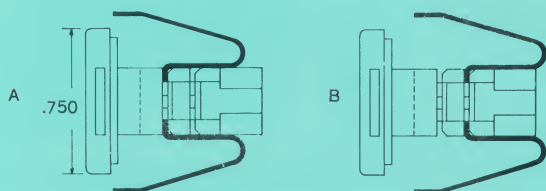


NEAT, TRIM COVERS
FOR PANEL CUTOUTS
RESERVED FOR FUTURE
INSTALLATIONS
OR DELETED BY
DESIGN CHANGE

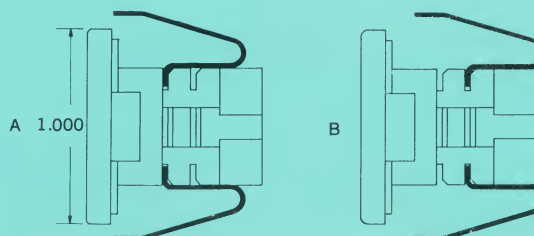


MSC PANEL PLUGS may be used to cover panel cutouts for Series 70E, 80E, and 90E miniature Tellite Switches, Word Indicator Lights, and Indicating Fuse Holders. These neat, attractive appearing plugs fill a requirement for panels in which cutouts have been provided for future installation of units, or where units have been moved or deleted through design change. Each plug will fit any single cutout measuring 0.920" x 0.670". Plugs may also be inserted into vertical or horizontal rows of units to cover spaces allotted for one or several units. Dimensions of plug face are $\frac{3}{4}$ " x 1". Spring mounting clips may be positioned as desired, top and bottom or on each side, depending on location of adjacent units. Two slots are provided on each side of the plug to adjust the position of the spring clips to compensate for panel thickness. See catalogs listed in masthead for specific information on Series 70E, 80E, and 90E units and their panel cutouts.

OPTIONAL SPRING CLIP POSITIONS: (A) *Front* for panels 0.125" thick or less. (B) *Back* for panels over 0.125" thick.
SHOWN ACTUAL SIZE



MOUNTED TOP AND BOTTOM
For installation in horizontal rows of units



MOUNTED ON TWO SIDES
For installation in vertical rows of units

ORDERING INFORMATION

Panel Plugs may be ordered in various colors by using the part numbers shown below:

PART NUMBERS

BLACK	RED	GRAY	WHITE	BLUE	YELLOW	GREEN
542-1	542-2	542-3	542-4	542-5	542-6	542-7

MASTER SPECIALTIES COMPANY
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